

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An optical coherence tomography system comprising:

- an optical source to emit an optical beam;
- a sample space;
- a photodetector;
- an interferometer set-up including
  - a reference reflector, and
  - a beam splitter-combination arrangement to split the optical beam into a reference beam to the reference reflector and a sample beam to the sample space, and to combine a reflected beam from the reference reflector with a returning beam from the sample space to form

a combined beam, and provide the combined beam to a first port of the photodetector, and

a further beam splitter ~~configured to receive~~ which receives part of a radiation from the beam splitter-combination arrangement and ~~to couple out an output beam~~ couples out a reference signal to a second port of the photodetector, wherein the photodetector scales and subtracts the combined signal and the reference signal to form an output photodetector signal having a reduced noise for output from the photodetector;

wherein

the optical source has an emission wavelength in the range of 1.6 $\mu$ m to 2.0 $\mu$ m, associated with a transition between an upper energy level and a lower energy level, and

the optical source comprises an excitation system which generates stimulated emission from a pump level to the upper energy level.

2. (Previously Presented) The optical coherence tomography system as claimed in Claim 1, wherein the optical source includes a Tm-doped fiber placed in an optical cavity of cavity reflectors

facing one another.

3.(Previously Presented) The optical coherence tomography system as claimed in Claim 2, wherein the cavity reflectors are anti-reflex coated for a wavelength range of 760nm to 810nm.

4.(Previously Presented) The optical coherence tomography system as claimed in Claim 2, wherein the cavity reflectors have a high-reflectivity for the wavelength range 2.2 $\mu$ m to 2.4 $\mu$ m.

5.(Previously Presented) The optical coherence tomography system as claimed in Claim 2, wherein the cavity reflectors have a high-reflectivity for the wavelength range 2.2 $\mu$ m to 2.4 $\mu$ m and/or for the wavelength range 1.40 $\mu$ m to 1.5 $\mu$ m.

6.(Previously Presented) The optical coherence tomography system as claimed in Claim 2, wherein the optical cavity has reflectivities less than 0.04 for the wavelength range of 1.6-2.0 $\mu$ m.

7. (Previously Presented) The optical coherence tomography system as claimed in Claim 6, wherein

an input cavity reflector has a high reflectivity for the wavelength range 1.6 $\mu$ m to 2.0 $\mu$ m; and

an output cavity reflector has a low-reflectivity for the wavelength range 1.6 $\mu$ m to 2.0 $\mu$ m.

Claims 8-9 (Canceled)